



The Risk Factor's Dengue Hemorrhagic Fever at Jayapura City Papuan Province

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Abstract

Dengue hemorrhagic fever disease was found doctor and also its vaccine, so the only way to prevent its disease happening this with decide infection chain which is with vector operation which is mosquito aedes aegypti. Jayapura city constitute dengue hemorrhagic fever endemic region, so needed by role and society and health officer in preventive dengue hemorrhagic fever. This research purpose was to know incidence risk factor dengue hemorrhagic fever at Jayapura City Papuan Province. The Method of this study was observational type analytic by use of approaching study *cross sectional*. Research is done at Jayapura city on december 2016. Population is community Jayapura City by totals sample as much 97 person. Data approach used questioner and used chi square and binary regression logistics. Result indicated that there is no correlation influence to dengue hemorrhagic fever incidence at City Jayapura is age (*p value* 0,068; RP = 1,510; CI95%= 1,048 – 2,176) and work (*p value* 0,835; RP = 0,912; CI95%= 0,594 – 1,401). Meanwhile influential variable to dengue hemorrhagic fever incidence at City Jayapura is education (*p value* 0,021; RP = 1,703; CI95%= 1,205 – 2,407), science (*p value* 0,018; RP = 1,663; CI95%= 1,121 – 2,468), attitude (*p value* 0,000; RP = 2,533; CI95%= 1,698 – 3,779), action (*p value* 0,000; RP = 2,805; CI95%= 1,939 – 4,057), environmentally home (*p value* 0,000; RP = 5,143; CI95%= 2,704 – 9,781) and health care (*p value* 0,009; RP = 3,095; CI95%= 1,097 – 8,726). Education and environmentally home as factor of dominant to dengue hemorrhagic fever incidence.

Keyword: Dengue Hemorrhagic Fever.

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1. Introduction

Dengue virus causes dengue disease, transmitted by the bite of female mosquitoes *Aedes aegypti* and *Aedes albopictus* has been infected by dengue virus from patients with DHF. Both types of *Aedes* disease, there are nearly all corners of Indonesia except in places with an altitude of over 1000 meters above sea level [1]. According Maysony, the average replication of dengue virus in *Aedes aegypti* mosquitoes in the laboratory to increase along with the temperature and precipitation was found to be significantly correlated with increased incidence of *Aedes* and dengue fever agegyti [2].

Dengue Hemorrhagic Fever (DHF) was first reported in Indonesia in Surabaya in 1968 where there were 58 people were infected and 24 fatalities with a mortality rate of 41.3%. Case definite confirmation through isolation of new viruses carried in 1970 and since that time the disease is constantly increasing and expanding the deployment throughout the territory of Indonesia and always occur sporadically Extraordinary Events (KLB) every year. Outbreaks of dengue fever in Indonesia recorded the largest occurred in 1998 with the Incident Rate (IR) = 35.19% per 100,000 population and Case Fatality Rate (CFR) = 2%. In 1999 IR sharp decline only amounted to 10.1% (MOH, 2005). Report of the Ministry of Health of the Republic of Indonesia until August 12, 2014 the number of dengue fever patients as many as 48 905 cases with 376 deaths (CFR 0.7%) patients DBD most is that children aged 5-11 years (MoH RI, 2014). This is confirmed also in Sigarlaki research, said that at the beginning of the outbreak in a country, the largest age distribution by disclosing the number of people most of the group of children younger than 15 years (85% -95%). However, in subsequent epidemics number of patients classified in the adult age increased [3].

Papua is one of the endemic areas of dengue, which the report of the District Health Office and the City through surveillance data is known to have four districts of Jayapura District, Keerom, Merauke and Bovendigul and Jayapura city each year has reported the discovery of dengue cases, while other districts have not reported any incidence of dengue. Overall the number of dengue cases in the province of Papua from 2011 to 2015 is as much as 2612 cases with 14 death cases. The spread of each year as follows: In 2011 as many as 297 cases and died two cases, in 2012 as many as 484 cases and died three cases, in 2013 as many as 453 cases and die 0 case, by 2014 as many as 454 and died 2 cases and 2015 sebanyak 924 cases died 5 cases. In 2012 happened Extraordinary Events (KLB) in Bovendigul districts where there are 332 cases and 2 cases died.

Jayapura city has a five-year dengue cases from 2011 to 2015 as many as 767 cases, 8 cases of death by the number of DHF cases or IR for DBD per 100,000 population is 1.04. Figures spread of dengue from year to year as follows: In 2011 as many as 137 cases, in 2012 as many as 72 cases, death in 1 case, in 2013 as many as 139 died from 0 cases in 2014 as many as 254 cases, death by 2 cases and 2015 as many as 165 cases, as many as five cases died. Prevention and eradication of dengue have been socialized government to the public through various media. Efforts to combat mosquito-borne also been done through various ways such as fogging, larviciding (abate) and mosquito nest eradication (PSN). But the results were not as expected. It is evident from the ever increasing incidence of dengue fever each year.

Factors that influence the behavior among other factors beliefs, values, attitudes, and the influence of the

individual characteristic. The increasing age of the level of development will be developed in accordance with the knowledge that had been learned and the experience itself. For that in shaping positive behaviors or actions that can be formed through a process and takes place in the interaction of humans and the environment. Factors affecting the action is knowledge, perception, emotion, motivation, and other (Notoatmodjo, 2010). Jobs can affect a person's knowledge because the work environment can provide knowledge and experience to an individual, either directly or indirectly. For example, people who work in the field of environmental health will better understand how to maintain the health of the environment, especially in the case of dengue mosquito eradication compared to people working in other fields [4]. People who work more aware of the importance of environmental health, where the results of research Hardayati [5] they were going to spend some time working at least a week.

2. Materials and Methods

This type of research is analytical research using cross sectional study approach in order to find the relationship between the variables studied at the same time (Swarjana, 2013). This study took place in the city of Jayapura, taking place at the Puskesmas Tanjung Ria, North Jayapura Puskesmas, Puskesmas Hamadi, Kotaraja Puskesmas, Puskesmas Abepura, and Puskesmas Waena. The reasons for selecting these locations because this location is dengue cases > 5 cases in January-October 2016. The population in this study are at-risk populations in which no cases of dengue in the city of Jayapura in January to October 2016. It consists of Puskesmas Tanjung Ria, North Jayapura Puskesmas, Puskesmas Hamadi, Kotaraja health centers, health centers and health centers Waena Abepura. Sampling technique in this study conducted in clusters. Of the six health centers in grab samples randomly. Then from each region shall be determined equally large number of samples each. Sampling starts with mapping of the initial dot / central point, eg from patients with dengue fever or researcher chosen as the location of the starting point. Thereafter been the first house and the second house passed to the method the nearest door. The sample size in this study sample as many as 97 people. The data were obtained using a questionnaire. Analysis using chi square and binary logistic regression.

3. Results

3.1 Analisa Univariat

Tabel 1: Distribusi Variabel Independen dan Dependen

No	Variabel	Frekuensi (n)	Presentase (%)
1	Age		
	< 25 year	28	28,9
	≥ 25 year	69	71,1
2	Education		

	Low	21	21,6
	High	76	78,4
3	Occupation		
	Not work	31	32
	Work	66	68
4	Knowledge		
	Less	44	45,4
	Good	53	54,6
5	Attitude		
	Negative	38	39,2
	Positive	59	60,8
6	Action		
	Less	32	33
	Good	65	67
7	Home environment		
	Less	49	50,5
	Good	48	49,5
8	Health service		
	Less	81	83,5
	Good	16	16,5
9	DBD occurrence		
	Positive	50	51,5
	Negative	47	48,5
	Total	97	100

Based on Table 1, indicate that most respondents in the age group > 25 years sebanyak 69 (71.1%), higher

education as many as 76 people (78.4%), working as many as 66 people (68%). Knowledge about dengue mostly good many as 53 people (54.6%), a positive attitude as many as 59 people (60.8%), acts both as many as 65 people (67%), home environment largely lacking many as 49 people (50, 5%). DBD prevented or health services in the majority of respondents said roughly as many as 81 people (83.5%). Of the 97 respondents there were 50 people (51.5%) of positive dengue.

3.2 Analisa Bivariat

a. Pengaruh umur terhadap kejadian DBD

Tabel 2: Pengaruh Umur Terhadap Kejadian DBD di Kota Jayapura tahun 2016

No	Age	DBD Occurence				n	%
		Positive		Negative			
		n	%	n	%		
1	< 25 year	19	67,9	9	32,1	28	100
2	≥ 25 year	31	44,9	38	55,1	69	100
Total		50	51,5	47	58,5	97	100
<i>p-value</i> = 0,068; RP = 1,510; CI95% (1,048 – 2,176)							

Table 2 shows that out of 28 persons aged <25 years as many as 19 people (67.9%) positive negative dengue and DHF were 9 people (32.1%). While 69 respondents aged > 25 years as many as 31 people (44.9%) positive and negative DBD DBD as many as 38 people (55.1%). The test results on the value of chi square statistic significance of 95% ($\alpha = 0.05$) was obtained p-value of 0.068 or $p > \alpha$ (0.05). This means that there is no effect of age on the incidence of dengue in the city of Jayapura. When viewed from the RP = 1,510; CI95% (1.048 to 2.176) which interpreted that age <25 years of opportunity to experience the incidence of dengue 1,510 times greater than the age of > 25 years.

b. The influence of education on the incidence of dengue

Table 3: Effect Against Education Kejadian dengue in the city of Jayapura in 2016

No	Education	Kejadian DBD				n	%
		Positif		Negatif			
		n	%	n	%		
1	Low	16	76,2	5	23,8	21	100
2	High	34	44,7	42	55,3	76	100
Total		50	51,5	47	58,5	97	100
<i>p-value</i> = 0,021; RP = 1,703; CI95% (1,205 – 2,407)							

Table 3 shows that of the 21 people with low education as many as 16 people (76.2%) positive and negative DBD DBD many as five people (23.8%). Meanwhile, of the 76 respondents who educated many as 34 people (44.7%) positive and negative DBD DBD many as 42 people (55.3%). The test results on the value of chi square statistic significance of 95% ($\alpha = 0.05$) was obtained p-value of 0.021 or $p < \alpha$ (0.05). This means that there is the influence of education on the incidence of dengue in the city of Jayapura. When viewed from the RP = 1.703; CI95% (1.205 to 2.407) which interpreted that low educational opportunity to experience the incidence of dengue 1.703 times greater than higher education.

b. The influence of the work of the incidence of dengue

Table 4: Effect Against Occupation Kejadian dengue in the city of Jayapura in 2016

No	Pekerjaan	Kejadian DBD				n	%
		Positif		Negatif			
		n	%	n	%		
1	Tidak kerja	15	48,4	16	51,6	31	100
2	Kerja	35	53	31	47	66	100
Total		50	51,5	47	58,5	97	100

p-value = 0,835; RP = 0,912; CI95% (0,594 – 1,401)

Table 4 shows that of the 31 people who do not work as many as 15 people (48.4%) positive and negative DBD DBD many as 16 people (51.6%). Meanwhile, from 66 respondents who worked as many as 35 people (53%) positive and negative DBD DBD 31 people (47%). The test results on the value of chi square statistic significance of 95% ($\alpha = 0.05$) was obtained p-value of 0.835 or $p > \alpha$ (0.05). This means that there is no effect on the incidence of dengue jobs in Jayapura. When viewed from the RP = 0.912; CI95% (0.594 to 1.401) so it is not meaningful.

c. Effect of knowledge of the incidence of dengue

Table 5: Effect of Knowledge Against Kejadian dengue in the city of Jayapura in 2016

No	Knowledge	DBD occurrence				n	%
		Positive		Negative			
		n	%	n	%		
1	Less	29	65,9	15	34,1	44	100
2	Good	21	39,6	32	60,4	53	100
Total		50	51,5	47	58,5	97	100

p-value = 0,018; RP = 1,663; CI95% (1,121 – 2,468)

Table 5 shows that of the 44 people who are knowledgeable about as many as 29 people (65.9%) positive and negative DBD DBD many as 15 people (34.1%). Meanwhile, from 53 respondents who berpengatahuan well as 21 people (39.6%) positive and negative DBD DBD many as 32 people (60.4%). The test results on the value of chi square statistic significance of 95% ($\alpha = 0.05$) was obtained p-value of 0.018 or $p < \alpha$ (0.05). This means that there is the influence of knowledge on the incidence of dengue in the city of Jayapura. When viewed from the $RP = 1,663$; $CI95\%$ (1.121 to 2.468) which is interpreted that the knowledge is less likely to experience the incidence of dengue 1,663 times greater than the knowledge of good.

e. Influence attitudes toward incidence of dengue

Table 6: Effect of Attitudes Toward dengue occurrence in the city of Jayapura in 2016

No	Attitude	DBD occurrence				n	%
		Positive		Negative			
		n	%	n	%		
1	Negative	31	81,6	7	18,4	38	100
2	Positive	19	32,2	40	67,8	59	100
Total		50	51,5	47	58,5	97	100

p-value = 0,000; RP = 2,533; CI95% (1,698 – 3,779)

Table 6 shows that of the 38 people with a negative attitude many as 31 people (81.6%) positive and negative DBD DBD 7 people (18.4%). While 59 respondents dengans IKAP positive in 19 (32.2%) positive and negative DBD DBD many as 40 people (67.8%). The test results on the value of chi square statistic significance of 95% ($\alpha = 0.05$) was obtained p-value of 0.000 or $p < \alpha$ (0.05). This means that there is influence attitudes toward incidence of dengue in the city of Jayapura. When viewed from the $RP = 2.533$; $CI95\%$ (1.698 to 3.779) which interpreted that negative attitudes likely to experience incidence of dengue 2,533 times greater than a positive attitude.

d. Effect of measures against dengue incidence

Table 7: Effect of Measures Against occurrence of dengue in the city of Jayapura in 2016

No	Attitude	DBD occurrence				n	%
		Positive		Negative			
		n	%	n	%		
1	Less	29	90,6	3	9,4	32	100
2	Good	21	32,3	44	67,7	65	100
Total		50	51,5	47	58,5	97	100

p-value = 0,000; RP = 2,805; CI95% (1,939 – 4,057)

Table 7 shows that of the 32 people to act less as many as 29 people (90.6%) positive and negative DBD DBD many as 3 people (9.4%). While the 65 respondents to the action either as many as 21 people (32.3%) positive and negative DBD DBD many as 44 people (67.7%). The test results on the value of chi square statistic significance of 95% ($\alpha = 0.05$) was obtained p-value of 0.000 or $p < \alpha$ (0.05). This means that there is the effect of measures against incidence of dengue in the city of Jayapura. When viewed from the $RP = 2,805$; $CI95\%$ (1.939 to 4.057) which is interpreted that the action is less likely to experience the incidence of dengue 2,805 times greater than a good action.

The influence of the home environment on the incidence of dengue

Table 8: Effect Against Home Environment dengue occurrence in the city of Jayapura in 2016

No	Home environment	DBD occurrence				n	%
		Positive		Negative			
		n	%	n	%		
1	Less	42	85,7	7	14,3	49	100
2	Good	8	16,7	40	83,3	48	100
Total		50	51,5	47	58,5	97	100

p-value = 0,000; $RP = 5,143$; $CI95\%$ (2,704 – 9,781)

Table 8 shows that of the 49 people with a home environment lacking many as 42 people (85.7%) positive and negative DBD DBD 7 people (14.3%). While the 48 respondents with a good home environment as much as 8 people (16.7%) positive and negative DBD DBD many as 40 people (83.3%). The test results on the value of chi square statistic significance of 95% ($\alpha = 0.05$) was obtained p-value of 0.000 or $p < \alpha$ (0.05). This means that there is the influence of the home environment on the incidence of dengue in the city of Jayapura. When viewed from the $RP = 5.143$; $CI95\%$ (2.704 to 9.781) which is interpreted that the home environment is less likely to experience the incidence of dengue 5.143 times larger than a good home environment.

e. Effect of health services on the incidence of dengue

Table 9: Effect Against Health Care Kejjadian dengue in the city of Jayapura in 2016

No	Health service	DBD occurrence				n	%
		Positive		Negative			
		n	%	n	%		
1	Less	47	58	34	42	81	100
2	Good	3	18,8	13	81,3	16	100
Total		50	51,5	47	58,5	97	100

p-value = 0,009; $RP = 3,095$; $CI95\%$ (1,097 – 8,726)

Table 9 shows that of the 81 people with health care A total of 47 people (58%) positive and negative DBD DBD many as 34 people (42.3%). While 16 respondents with better health services, as many as three people (18.8%) positive and negative DBD DBD many as 13 people (81.3%). The test results on the value of chi square statistic significance of 95% = 0.05) was obtained p-value of 0.009 or $p\alpha (<\alpha (0.05)$. This means that there is the influence of health care on the incidence of dengue in the city of Jayapura. When viewed from the $RP = 3.095$; $CI_{95\%} (1.097 \text{ to } 8.726)$ which interpreted that health services are less likely to experience the incidence of dengue 5.143 times greater than better health services.

1. Multivariate Analysis

Multivariate analysis is used to obtain answers to the factors which influence the incidence of dengue, it is necessary to proceed on the bivariate and multivariate analysis. Modelling using bivariate logistic regression modeling begins with bivariate using backward method in which each - each independent variable on the dependent variable was tested in stages. From the results of multivariate analysis are shown in Table 10.

Table 10: Variables Multiple Logistic Regression Analysis

No	Variables	B	p-value	OR	95% C. I. for Exp (B)	
					Lower	Upper
1	Education	10,541	0,051	4,668	0,992	21,957
2	Action	10,950	0,014	7,032	1,496	33,047
3	Home environment	20,832	0,000	6,974	5,024	57,352
	Constant	-10,532	0,000	0,000		

Tabel 10 di atas, maka tindakan dan lingkungan rumah sebagai faktor dominan sedangkan pendidikan merupakan faktor interaksi.

4. Discussion

4.1 The influence of age on the incidence of dengue

The result showed that there was no effect of age on the incidence of dengue in the city of Jayapura (p-value 0.068). The results of this study are not consistent with research Roose [6] in Bukit Raya Pekanbaru that the age effect on the incidence of dengue fever in which the key risk factors were age <15 years. While research Monintja [7] in the city of Manado that examines the age > 46 years and <46 years, the incidence of dengue fever is more prevalent in the age <46 years and is a factor that is associated with the incidence of dengue fever associated with DHF prevention behavior. Age in the Great Dictionary of Indonesian is a long time since they were born alive or no (Handayani and Suryani, 2010). The older the person, then the experience will increase so

will increase the knowledge of an object [8]. The difference this experiment empirically classification divides teens and adults, which the age limit is 15-24 years old adolescents and adults > 25 years, as they relate to behavior. Results of the analysis showed that out of 28 persons aged <25 years as many as 19 people (67.9%) positive negative dengue and DHF were 9 people (32.1%). While 69 respondents aged > 25 years as many as 31 people (44.9%) positive and negative DBD DBD as many as 38 people (55.1%). This shows that teens and adults alike - at an increased risk of incidence of dengue, but the risk factor is higher in the teen years. It is proved from the $RP = 1,510$; $CI95\%$ (1.048 to 2.176) which interpreted that age <25 years of opportunity to experience the incidence of dengue 1,510 times greater than the age of > 25 years. These results are consistent with the theory according Fitriany [9], that the growing age will be growing also of perception and thought patterns, so that the knowledge gained is getting better. In adulthood, the individual will be more actively involved in community and social life as well as more preparations for the success of efforts to adapt to the old age, in addition to the adult age will be more use of time for reading [9].

The absence of significant influence due to respondents aged teens alike - just stay with family or parents, so the role of adults is more dominant on the cleanliness of the home environment, so as to direct the respondents aged adolescents behave. It is also evident from the data the incidence of dengue fever occurred in children - toddlers who have elderly people aged > 25 years old, so age does not affect the incidence of dengue fever. This is consistent with data from the Ministry of Health of Indonesia (2010), that the dengue cases per group of age from the year 1993 to 2009 there was a shift. From 1993 to 1998 the largest age group of dengue cases is the age group <15 years, the year 1999 to 2009 the largest age group dengue cases tend to be in the age group = 15 years.

4.2 Effect of education on the incidence of dengue

The result showed that there was the influence of education on the incidence of dengue in the city of Jayapura (p -value 0.021). The results are consistent with research Monintja (2015) in the city of Manado in 2015 revealed that the educational effect on the incidence of dengue fever. The higher the education, the better the actions carried out by someone in the prevention of dengue fever, it is associated with the knowledge and the work he has in revenue. Education requires people to do and fill his life to attain salvation and happiness. Education is needed to get informaasi, for example, things that support health so as to improve the quality of life. Thus it can be interpreted that the higher one's education, then the easier to receive information so that the more knowledge he has, otherwise less education would hinder the development of one's attitude to the values that were introduced (Prayoto, 2014). The result showed that most of the higher education as many as 76 people (78.4%) and 21.6% pendidikanrendah where less educated respondents (76.2%) positive DBD, while highly educated as many as 34 people (44.7%) positive dengue. This shows the tendency of lower education at higher risk of incidence of dengue. From the test results $RP = 1.703$; $CI95\%$ (1.205 to 2.407) which interpreted that low educational opportunity to experience the incidence of dengue 1.703 times greater than higher education. Dengue hemorrhagic fever is a common occurrence and the information has become widespread, so that respondents with lower education or absorb less examine issues - masalah health information it receives, so the effect on the incidence of dengue. It also expressed Mubarak [10] that education means the guidance given seseo

4.3 Effect of knowledge of the incidence of dengue

The result showed that there was the influence of knowledge on the incidence of dengue in the city of Jayapura (p-value 0.018). The results are consistent with research Supriyanto (2011) in patients with the incidence of dengue fever in Puskesmas Tlogosari Wetan Semarang revealed that there is a significant relationship between knowledge ($p = 0.007$, OR = 3.17) and the incidence of dengue fever.. Sensing occurs through human senses that the sense of sight, hearing, smell, taste and touch. Most human knowledge is obtained through the eyes and ears. Or cognitive knowledge is dominant very important for one's [8].

DBD information that has been conveyed certainly affect terhadap knowledge and factors that helped influence is pendidikan someone, so it's easy to get knowledge.

The results of the analysis that of 44 people who are knowledgeable about as many as 29 people (65.9%) positive and negative DBD DBD many as 15 people (34.1%). Meanwhile, from 53 respondents who berpengatahuan well as 21 people (39.6%) positive and negative DBD DBD many as 32 people (60.4%). = 0.05) was obtained or $p\alpha$. The test results on the value of chi square statistic significance of 95% ($<\alpha (0.05)$). This indicates that respondents who have low knowledge likely to experience the incidence of dengue. It is proved from the RP = 1,663; CI95% (1.121 to 2.468) which is interpreted that the knowledge is less likely to experience the incidence of dengue 1,663 times greater than the knowledge of good.

Baik knowledge of the respondent to take precautions by keeping the home environment as a risk factor as do 3 M and clean the place - the mosquito nesting site. It is inversely proportional to the respondents lack knowledge about dengue, affecting the attitude and actions in pencegahan dengue.

4.4 Effect of attitude towards dengue incidence

The result showed that there is an influence attitudes toward incidence of dengue in the city of Jayapura (p-value 0.000). The results are consistent with research Supriyanto (2011) in patients with the incidence of dengue fever in Puskesmas Tlogosari Wetan Semarang revealed that there is a significant correlation between attitude ($p = 0.000$, OR = 49.61) and the incidence of dengue fever. Study by Harahap [11] reveals that attitudes have a significant influence on people's behavior in mosquito eradication. According Notoatmodjo [4], suggests that attitude is a reaction or response which was still closed from a person to a stimulus / object. Attitudes are feelings, thoughts, and the tendency of a person more or less permanently on certain aspects of the environment. Attitudes are evaluative biases to a stimulus or objects that have an impact on how one is dealing with the object. This means that attitudes show of agreement or disagreement, like or dislike someone against something [12].

The attitude of respondents who positively respond to the problem of dengue disease is a serious thing, so prevention of dengue must be stronger to do in preventing the incidence of dengue by means of mosquito nest elimination (PSN) is done once a week and sustainable as wash basins or water reservoirs, community service periodically to clean the environment and doing as well as stagnant water in old tires, garbage cans, birdbath and flower pots can be a breeding ground for *Aedes aegypti*. Results of the analysis showed that out of 38

people with a negative attitude many as 31 people (81.6%) positive and negative DBD DBD 7 people (18.4%). While the 59 respondents with a positive attitude as much as 19 people (32.2%) positive and negative DBD DBD many as 40 people (67.8%). This suggests that a positive attitude is more likely on the incidence of dengue. The test results $RP = 2.533$; $CI95\%$ (1.698 to 3.779) which interpreted that negative attitudes likely to experience incidence of dengue 2,533 times greater than a positive attitude.

Results of the analysis showed that out of 49 people with a home environment lacking many as 42 people (85.7%) positive and negative DBD DBD 7 people (14.3%). While the 48 respondents with a good home environment as much as 8 people (16.7%) positive and negative DBD DBD many as 40 people (83.3%). This shows that the home environment a chance against the incidence of dengue. The observation result showed that respondents who have knowledge and a positive attitude has a home environment lacking. It is inversely proportional to the knowledge and attitudes of the respondents. But most have a good home environment. This shows that the knowledge and attitudes essential berpean of household environment. The test results $RP = 5.143$; $CI95\%$ (2.704 to 9.781) which is interpreted that the home environment is less likely to experience the incidence of dengue 5.143 times larger than a good home environment.

Once full, the mosquitoes will rest in places that are damp, shady, and somewhat dark like in the house in fabric / clothes hung Used, caves, bushes, ditches and others. Most of the aedes mosquito will bite at 08:00 to 12:00 hours and hours of 15.00- 17.00. The wall is made of wood allows more holes for the entry of mosquitoes. Installation of wire netting pasda ventilation will cause the narrower contact mosquitoes which were outside the house with the occupants of the house, where the mosquitoes can not get into the house. The use of gauze on ventilation can reduce the contact between the Anopheles mosquito and human [13-15]. Thus the home environment affects the incidence of dengue, a good knowledge and good attitude certainly respondents would make prevention of dengue continuously by keeping the environment clean house. But in penelitanini also found that the environmental conditions Ruma clean but suffered the incidence of dengue fever caused adanya transmission through the bite of infected mosquitoes at tetanga or the surrounding environment. In addition, the surrounding environment is not clean, for example, traveling to places - public places and the risk for the aedes mosquito bites.

4.5 Effect of health services on the incidence of dengue

The result showed that there was the influence of health services on the incidence of dengue in the city of Jayapura (p-value 0.009). Hardayati [16] in his study mentioned that the availability of facilities and infrastructure to implement dengue mosquito eradication did not show a significant relationship to the behavior of people in mosquito eradication of dengue hemorrhagic fever. Availability of the means used are important in the emergence of a person's behavior in the areas of health, no matter how positive background, beliefs, and mental readiness owned, but if health facilities are not available, of health behaviors will not show up .

Jayapura City Health Department in preventing the incidence of dengue by making mosquito nest eradication (PSN) DBD, Flick Periodic Inspection (PJB), abatisasi and Fogging Focus. From the results of the questionnaire that the activities that seem to do is fogging focus particularly in the event of DHF in one satau a community.

This causes most of the respondents stated that health services in the DBD prevented or most of the respondents said that less as many as 81 people (83.5%). Lack of health care can be affected by the lack of facilities and resources in preventive health personnel through larva monitoring (Jumantik), so it is still minimal and limited to acts performed after the incidence of dengue. This needs to get the attention of government khususnya Health Department and Community Health Center as a line of public health first by enhancing community participation through health promotion for people to take action as interpreter monitors jenitk at home and surroundings and preventive actions through physical action through 3 M plus, biology with a spread of fish heads and perform abatesasi tin. The results of the analysis that found that of the 81 people with health care A total of 47 people (58%) positive and negative DBD DBD many as 34 people (42.3%). While 16 respondents with better health services, as many as three people (18.8%) positive and negative DBD DBD many as 13 people (81.3%). This indicates that health services are likely to incidence of dengue. It is proved from the $RP = 3.095$; $CI95\%$ (1.097 to 8.726) which interpreted that health services are less likely to experience the incidence of dengue 5.143 times greater than better health services.

4.6 The dominant factor on the incidence of dengue

Multivariate analysis showed that the actions and the home environment and education as the dominant factor is the interaction factor DBD. According Prayoto (2014), that education requires people to do and fill his life to attain salvation and happiness. Education is needed to get informaasi, for example, things that support health so as to improve the quality of life. Thus it can be interpreted that the higher one's education, then the easier to receive information so that the more knowledge he has, otherwise less education would hinder the development of a person's attitude towards the values introduced. Education will affect a person's health problems in absorbing information and form good behavior. So with higher education will improve knowledge. With high knowledge about the dengue problem, so it will affect attitudes and actions in maintaining the cleanliness of the home environment.

Good action performed by someone to keep their impact on the cleanliness of the home environment. Home environment clean to prevent breeding or breeding of aedes aegypti mosquito, so the action and the home environment is a factor that is directly related to the incidence of dengue, but it diinteraksi by education. The higher education will be more easily absorb the information obtained and have good action in the prevention of dengue.

5. Conclusion

Based on the results of research and discussion can be summed up as follows:

1. No effect of age on the incidence of dengue in the city of Jayapura (p-value 0.068; $RP = 1.510$; $CI95\% = 1.048$ to 2.176).
2. There is the influence of education on the incidence of dengue in the city of Jayapura (p-value 0.021; $RP = 1.703$; $CI95\% = 1.205$ to 2.407).

3. There was no effect on the incidence of dengue jobs in Jayapura (p-value 0.835; RP = 0.912; CI95% = 0.594 to 1.401).
4. There is the influence of knowledge on the incidence of dengue in the city of Jayapura (p-value 0.018; RP = 1,663; CI95% = 1.121 to 2.468).
5. There is the influence attitudes toward the incidence of dengue in the city of Jayapura (p-value 0.000; RP = 2.533; CI95% = 1.698 to 3.779).
6. There is the effect of measures against incidence of dengue in the city of Jayapura (p-value 0.000; RP = 2,805; CI95% = 1.939 to 4.057).
7. There is the influence of the home environment on the incidence of dengue in the city of Jayapura (p-value 0.000; RP = 5.143; CI95% = 2.704 to 9.781).
8. There is the influence of health care on the incidence of dengue in the city of Jayapura (p-value 0.009; RP = 3.095; CI95% = 1.097 to 8.726).
9. Education and the home environment as a dominant factor on the incidence of dengue.

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